

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, Item 5 below.	
International application No. PCT/GB2005/000810	International filing date (day/month/year) 03/03/2005	(Earliest) Priority Date (day/month/year) 04/03/2004
Applicant HUBBELL LIMITED		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.
☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box II).

3. ☐ Unity of invention is lacking (see Box III).

4. With regard to the title,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- ☐ the text is approved as submitted by the applicant.
☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 1
☒ as suggested by the applicant.
☐ as selected by this Authority, because the applicant failed to suggest a figure.
☐ as selected by this Authority, because this figure better characterizes the invention.
- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB2005/000810

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

10/591528

A method and apparatus for characterising a three phase transformer(3) using a single phase power supply(1). Pairs of input terminals(H0-H3) of the transformer are sequentially energised for each energisation and the voltage between pairs of output terminals(x0-x3) of the transformer are measured. Measured voltages are processed in order to characterise the winding configuration of the transformer. Either simultaneously or subsequently the presence of neutrals on the primary and/or secondary side of the transformer are identified to enable the winding configuration to be further characterised. Subsequently any phase displacement of the transformer is determined. The apparatus comprises means(2) for selectively applying a single phase power supply(1) to pairs of terminals(H0-H3) on the transformer(3) and for measuring voltages between pairs of terminals(x0-x3) of the transformer and for measuring phase difference between the primary and secondary sides of the transformer all under automatic control of a control means(13) which includes a processing means to process measured voltages and phase differences in order to characterise the transformer.

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G01R31/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G01R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	AVO INTERNATIONAL: "Transformer Turns Ratio Test Set" 'Online! vol. 8/99, 1999, XP002330453 Retrieved from the Internet: URL: http://www.megger.com/common/documents/FB_FB_Y550503_DS_En_V01.pdf 'retrieved on 2005-06-02! the whole document	15
A	----- -/--	1, 16

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

3 June 2005

Date of mailing of the international search report

16/06/2005

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.: "IEEE STD C57.12.90-1999 - IEEE Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers" 'Online! 30 December 1999 (1999-12-30), XP002330454 ISBN: 0-7381-1789-7 Retrieved from the Internet: URL: ">http://ieeexplore.ieee.org/iel5/6608/17647/00815307.pdf?isnumber=17647&prod=STD&arnumber=815307&arSt=&ared=&arAuthor=> 'retrieved on 2005-06-02! page 1 page 7 - page 16	1, 16
A	WO 03/054561 A (ABB INC; HAMDAN, FADI, ADEL) 3 July 2003 (2003-07-03) page 4 - page 5; figures 1,2	1, 16
A	US 4 241 306 A (BUMP, RUSSELL E) 23 December 1980 (1980-12-23) the whole document	1, 16
A	US 2003/139891 A1 (COFFEEN LARRY T) 24 July 2003 (2003-07-24) paragraph '0157! - paragraph '0163!; figure 7	1, 16
A	US 5 276 402 A (SCHUCHT ET AL) 4 January 1994 (1994-01-04) the whole document	1, 16

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 03054561	A	03-07-2003	US 2004124860 A1 AU 2002364008 A1 CA 2469949 A1 EP 1456678 A1 WO 03054561 A1	01-07-2004 09-07-2003 03-07-2003 15-09-2004 03-07-2003
US 4241306	A	23-12-1980	NONE	
US 2003139891	A1	24-07-2003	WO 03063020 A1	31-07-2003
US 5276402	A	04-01-1994	NONE	